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Evaluation of Cytochalasin B-Induced Membrane Vesicles Fusion Specificity with Target Cells

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Abstract

© 2018 Marina Gomzikova et al. Extracellular vesicles (EV) represent a promising vector system for biomolecules and drug delivery due to their natural origin and participation in intercellular communication. As the quantity of EVs is limited, it was proposed to induce the release of membrane vesicles from the surface of human cells by treatment with cytochalasin B. Cytochalasin B-induced membrane vesicles (CIMVs) were successfully tested as a vector for delivery of dye, nanoparticles, and a chemotherapeutic. However, it remained unclear whether CIMVs possess fusion specificity with target cells and thus might be used for more targeted delivery of therapeutics. To answer this question, CIMVs were obtained from human prostate cancer PC3 cells. The diameter of obtained CIMVs was 962,13 ± 140,6 nm. We found that there is no statistically significant preference in PC3 CIMVs fusion with target cells of the same type. According to our observations, the greatest impact on CIMVs entry into target cells is by the heterophilic interaction of CIMV membrane receptors with the surface proteins of target cells.

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